Indiana Lake Michigan Coastal Program

Coastal Zone Management Section 309 Enhancement Grant Program

Assessment and Multi-Year Strategy 2006 - 2010

FINAL DRAFT

Indiana Department of Natural Resources
Indiana Lake Michigan Coastal Program

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INTRODUCTION

Background
Section 309 of the Coastal Zone Management Act (CZMA), as amended in 1990 and again in 1996, establishes a voluntary grants program to encourage states and territories with approved programs to develop program enhancements in one or more of the following areas:

- ✓ Wetlands
- ✓ Public access
- ✓ Coastal hazards
- ✓ Cumulative and secondary impacts
- ✓ Energy and government facility siting
- ✓ Lake debris
- ✓ Lake resources
- ✓ Special Area Management Plans
- ✓ Aquaculture

Under this program the Secretary of Commerce is authorized to make awards to states and territories to develop and submit for federal approval program changes that support attainment of the objectives of one or more of the enhancement areas. The Office of Ocean and Coastal Resource Management (OCRM) provides guidance to states and territories for developing or updating previous Assessment and Strategy documents. The OCRM guidance provides a recommended format to address each enhancement area in the document. The most recent guidance was issued as a Draft in March 2005. The guidance allows for developing either a single combined Assessment and Strategy document, or two separate documents. Indiana has opted to produce a single combined document. Generally the format consists of a characterization of the issue, a series of questions concerning the status of the issue and changes related to the issue that have occurred since the last Assessment (or in this case Program Approval), and a concluding statement that identifies any program "gaps" and the priority level (high/medium/low) assigned to the enhancement area by the coastal program. If applicable, a section may include a multi-year Strategy that addresses selected "gaps."

Previous 309 Activities
This is the first 309 Assessment and Strategy written by the Indiana Lake Michigan Coastal Program since it received Program Approval in August 2002. Nonetheless, every effort was made to have the development of this document closely follow the 2005 Draft Guidance. The Indiana Lake Michigan Coastal Program Final Environmental Impact Statement/Program Document was considered the baseline condition to which comparisons were made in order to determine changes that have occurred over the past two years that may affect the enhancement areas.

Public Participation
Public participation is an important element of the Indiana Coastal Program and remains a high priority for development of the 309 Assessment and Strategy. Two methods of involving the public were used, interactions with the Coastal Advisory Board (CAB) and meeting's with the general public.

A total of three meetings have been held to obtain input from the CAB. The first meeting was on July 21, 2004 for the purpose of introducing the CAB to Section 309 and to request their participation in the process of developing the Assessment and Strategy document. Briefing materials explaining Section 309 were prepared in advance and

distributed at the meeting. The second meeting with the CAB was held on September 21, 2004 to have an initial discussion on the nine 309 Enhancement Areas. The consensus of the meeting was that wetlands, public access, coastal hazards, CSI and SAMP would likely be identified as Medium/High priority, and energy/facility siting, lake debris, lake resources and aquaculture identified as Low priority. The third meeting with the CAB was on January 10, 2004 to review the Public Draft of the Assessment document. Comments received from members of the CAB have been incorporated into this document as appropriate.

Two meetings with the general public were held on September 21, 2004 and January 10, 2005 to receive input and discuss the Public Draft of the Assessment document. Comments received from the public were incorporated and a third meeting with the general public was held on March 5, 2005 to review a combined Draft Assessment and Strategy document as appropriate.

This current version of the Indiana 309 Assessment and Multi-Year Strategy is the Final Draft prior to submission to OCRM for approval.

Special Considerations

Guidance provided by OCRM for the development of this document includes two provisions that encourage states to consider; 1) threatened and endangered species, and 2) marine/Great Lakes protected areas. In fulfillment of these provisions the following considerations were taken into account for each enhancement area: (a) potential endangered and threatened species issues, including their implications for identifying priority enhancement areas; (b) opportunities for program changes and/or habitat conservation and restoration as a component of the Strategies to address these issues; (c) consideration whether other proposed program changes in the Strategies could have negative effects on endangered and threatened species, and whether there are ways to lessen or eliminate these potential effects; and (d) opportunities to improve the management of special Great Lakes' areas as described in Executive Order 13158-Marine Protected Areas (MPAs).

Summary of Multi-Year Strategy

The Indiana Lake Michigan Coastal Program multi-year strategy will be a five-year plan covering the years 2006 to 2010. The implementation of the strategy will result in routine program changes to the ILMCP that support attainment of the objectives of one or more of the section 309 enhancement areas. *Throughout the development of the proposed strategy, a deliberate effort was made to coordinate with existing program activities and avoid any duplication of effort.*

The following areas are proposed to receive priority in the multi-year strategy:

<u>Public Access</u>

Goal 1: Improve the information available to the state regarding public access in the coastal area.

The state will develop a comprehensive inventory of existing public access sites within the Indiana coastal area and incorporate the new information into the SCORP database. Following the collection of the new public access information the state will conduct an

assessment of coastal user needs and perceptions in order to better understand how to best provide future public access opportunities in the coastal area.

Goal 2: Improve the information available for the public regarding public access in the coastal area.

Based on the public access inventory completed in FY 06, the state will develop and publish one or more coastal access guides that cover the coastal area.

Coastal Hazards

Goal 1: Enhance the capacity of local communities to prevent and minimize coastal hazard threats to people and property.

The state will develop one or more hazard mitigation model ordinances for adoption by local communities. The purpose of the ordinance(s) will be to protect the natural function of coastal features (e.g., lakefront dunes) that serve to prevent or minimize damage from flooding and/or erosion.

Goal 2: Improve the information available for mitigation planning to reduce the threat from coastal hazards.

The state will develop a network of permanent reference sites that will be used to annually survey and monitor lake shoreline changes. The shoreline change information will be used to enhance the implementation of existing state and local regulatory and nonregulatory (i.e., sand nourishment) programs.

Lake Michigan Resources

Goal: Develop a management plan for significant underwater archeological resources in state waters of Lake Michigan.

The state will conduct an inventory of significant underwater archaeological resources and develop a management plan for the enjoyment and protection of those resources.

Wetlands

Goal: Conduct an inventory of coastal wetlands.

The state will adopt a methodology to accurately delineate coastal wetland types and produce revised Land Use Land Cover maps from new aerial photography. The resulting maps will be incorporated into state planning and regulatory programs. Indiana's Counties, in cooperation with the State of Indiana, are obtaining spring 2005, leaf-off, color-infrared, orthorecitified statewide aerial photography.

Cumulative and Secondary Impacts

Goal 1: Enhance the capacity of County Health Departments to ensure the proper functioning of on-site septic systems.

The state will develop new guidelines and procedures for adoption by the Indiana State Department of Health (ISDH) and County Health Departments. The guidelines and

procedures will reflect the best available technology for the placement, design, and installation of coastal on-site septic systems.

Goal 2: Improve the information available regarding the location of on-site septic systems.

The state will develop a GIS map of onsite septic system locations in a selected coastal community to be adopted by that community to support implementation of ISDH Residential Sewage Disposal provisions.

Summary of Estimated Costs
A summary of estimated costs for each project is shown in the following table:

SUMMARY OF ESTIMATED 309 EXPENDITURE PER YEAR

	FY 06	FY 07		FY 08	FY 09	FY 10
Public Access						
Inventory/Database	100					
Needs Survey		70				
Outreach/publications			30			
Wetlands						
Analysis	50					
Field Check		50				
CSI						
Community Capacity Assessment				50	50	50
GIS Mapping				50		
Hazards						
Ordinance Inventory/development				50		
Technical Assistance					50	
Install Benchmarks					50	
Lake Resources						
Archaeological Inventory						100
Total	150	150		150	150	150

Fiscal and Technical Needs
The Indiana Lake Michigan Coastal Program (ILMCP) is a “networked” program made up of several Indiana natural resource protection programs. The lead agency for implementing the program is the Indiana Department of Natural Resources (IDNR). Since the program was approved in 2002, the Division of Soil Conservation had responsibility for providing administrative support to the coastal program staff and coordinating the coastal program member agencies of the state. At the time this document was being finalized the Division of Soil Conservation was being transferred into the Department of Agriculture. The coastal program staff and program coordination responsibilities were to remain with the DNR. The long-term implications, both fiscal and technical, of this change remain unclear. In addition, the state is projecting almost a $600 million deficit for the budget year beginning July 1, 2005. Because Indiana operates under a constitutional requirement to balance its budget, agencies have been directed to prepare operating budgets with a 2% reduction in base funding. It is therefore

unlikely that the INLMCP partners are going to receive any increased state funding for the program functions. The State Budget Bill HB 1001 appropriates $143,000 of dedicated cigarette tax funds to the Coastal Program. This represents a net increase in dedicated funding for the program. However, the program had previously benefited from its alliance with Division of Soil Conservation staff time on administrative, GIS, Web, and other assorted tasks. Thus, this increased financial appropriation may actually represent a reduction in services provided. Having Section 309 funds available will enable the ILMCP to continue its efforts to make ongoing improvements to the coastal program.

The only technical needs that will be acquired for implementation of the proposed 5-year Strategy are individuals hired on a short-term or temporary basis with special knowledge of coastal geology, pollution control, GIS, and wetlands assessment.

PUBLIC ACCESS

Section 309 Programmatic Objectives

I. Improve public access through regulatory, statutory, and legal systems.
II. Acquire, improve, and maintain public access sites to meet current and future demand through the use of innovative funding and acquisition techniques.
III. Develop or enhance a Coastal Public Access Management Plan that takes into account the provision of public access to all users of coastal areas of recreational, historical, aesthetic, ecological, and cultural value.
IV. Minimize potential adverse impacts of public access on coastal resources and private property rights through appropriate protection measures.

Resource Characterization

Provide a qualitative and quantitative description of the current status of public access in the Indiana coastal area. Also, identify any ongoing or planned efforts to develop quantitative measures to assess progress in managing public access.

The Indiana Coastal Area supports various types of public access including beaches, boating, parks and natural areas, historical and cultural areas, and an extensive network of trails.

Approximately 234 square miles of Lake Michigan is held in public trust for the citizens of Indiana. The availability of public access to the 45 miles of Indiana shoreline is largely dependent on the ownership above the Ordinary High Watermark (OHW). Approximately 21.8 miles of the shoreline are heavily developed with limited public access and the remaining 23.2 miles are sandy beaches. The Indiana Dunes State Park and the Indiana Dunes National Lakeshore together make up approximately 18.25 miles of beach and provide most of the public access to Lakeshore beaches. The remainder of the beach areas are either owned or operated as public beaches by local communities, or they are under private control by individual owners.

The use of trails for walking, bicycling and canoeing provide a means by which to link and integrate the many forms of recreation and natural areas in the coastal area. Federal, state and local government share development of the trails system with several specific user groups.

Indiana administers several recreation and conservation grant programs that contribute to the acquisition, development, and maintenance of public access within the coastal area. These grant programs include the Land and Water Conservation Fund, Indiana Waters, Hometown Indiana, Recreation Trails Program and the Indiana Coastal Grant Program.

In recent years homeland security concerns have prompted a number of industrial landowners along the lakeshore to eliminate traditional access through their property.

There are no ongoing or planned efforts to develop quantitative measures.

Briefly characterize the demand for coastal public access based on population and Indiana's State Comprehensive Outdoor Recreation Plan (SCORP).

Indiana's State Comprehensive Outdoor Recreation Plan (SCORP) 2000 recommends a recreational land standard to measure progress in the availability of recreational lands. The standards were recommended by the National Recreation and Park Association in 1988 and are not viewed as a hard and fast rule, only a general indication. The standards apply to local recreation lands (managed by county, municipal or township governments) and regional recreation lands (managed by state or federal government).

Recreation Land Standards, SCORP 2000

Land Classification	Recreation Land Per Person	Recreation Land Per Capita (1000 Persons)
Local Recreation Lands	.020 Acres	20 Acres
Regional Recreation Lands	.035 Acres	35 Acres
Total Recreation Lands	.055 Acres	55 Acres

The SCORP 2000 indicates that the three coastal counties do not meet the local recreation land standards, but Porter and LaPorte counties meet or exceed the regional recreation land standards due to the Federal and state-owned lakeshore beaches.

In spite of how the counties compare to the SCORP recreation land standards, the IDNR Division of Outdoor Recreation indicates that in their opinion the demand for public access within the coastal area exceeds the ability of the state to provide sufficient opportunities. Population of the three coastal counties increased between 1990-2000 with the greatest increase in Porter (13.9%), followed by LaPorte (2.8%) and Lake (2%). Porter County continued to experience the greatest increase in population between 2000-2003 at 3.9%, followed by Lake County at 0.6%. Only LaPorte County has shown a slight decrease in population (-0.2%).

The demand for public access to the Indiana coastal area is also influenced greatly by the close proximity of major metropolitan centers of Gary and Chicago, Illinois. Day visitors from these cities, particularly during the summer months, rely heavily on the Indiana Lakeshore region for recreational opportunities.

Identify any significant impediments to providing adequate access, including conflicts with other resource management objectives.

Indiana, like any state, has a number of impediments to being able to meet the demands for public access in the coastal area. Indiana has been quite successful at linking and integrating the objectives of many of its natural resource programs. Impediments therefore, are related less to conflicts with other resources management objectives, as they are to other factors. Impediments include:

Riparian ownership: Uses of land above the Ordinary High Watermark (OHW) are controlled by private interests.

Increased population: As more individuals move to the coastal area, less land becomes available to provide public access opportunities.

Limited parking: Many of the existing Lakeshore beaches have insufficient parking available to accommodate the carrying capacity of the beaches.

Insufficient funding: State and Federal funding for activities related to public access is limited and not adequate to meet demands.

Water quality: Increased use of Lake and terrestrial resources can lead to degraded water quality. The results of monitoring of beach waters for *E. coli* has a 24-hour turn-around time for results and therefore advisories are posted very late.
The Grand Calumet River is one of the 43 Areas of Concerns identified in the Great Lakes Region. This AOC is impaired in all 14 Beneficial Use Impairments.

Explain any deficiencies or limitations in the following data.

Indiana does not currently collect data on several of the categories identified.

ACCESS TYPE	CURRENT NUMBER(S)	CHANGE SINCE APPROVAL
State/County/Local parks (# and acres)	502 sites / 32,942 Acres	Not Available
Public Beaches (# and shoreline miles)	22 / 10.5 Miles	Not Available
Public Power Boat Ramps	22 sites	Not Available
Kayak/Canoe Ramps	3 (non-motorized)	Not Available
Designated Scenic Vistas or Overlook Points	Not Inventoried	Not Available
State or Locally Designated Vertical Rights-of-Way	86 (BEACH Program 2004)	Not Available
Fishing Piers	18 piers (60 sites allow fishing)	Not Available
Coastal Trails/Boardwalks (# and miles)	57 trails / 60 miles	Not Available
ADA Compliant Access (%)	Not Inventoried	Not Available
Public Beaches with Water Quality Monitoring and Public Notice (% of total beach miles) and Number Closed due to Water Quality Concerns (# of beach mile days)	95.7% of total public beach miles are monitored (2003). There were 88 total beach closings/advisories in 2003.	Total public beach miles monitored was not determined in 2002. There were 176 closings/advisories in 2002.
Projects to Improve Existing Beach Access Facilities	Not Inventoried	Not Available

Characterization Of Progress In Managing Public Access

For each of the management categories below, identify any changes (Significant/Moderate/None) since Program Approval in 2002.

For categories with changes:

- **Identify and summarize the change**
- **Specify whether it was a 309 or other CZM driven change and specify funding source.**
- **Characterize the effect of the change in terms of both program outputs and outcomes.**

Statutory, regulatory, or legal system changes that affect public access.

Significant Moderate[1] None

Acquisition programs or techniques.

Significant Moderate[2] None

Comprehensive access management planning (including development of GIS data layers or databases).

Significant[2,3] Moderate None

Operation and maintenance programs.

Significant Moderate[2] None

Funding sources or techniques.

Significant Moderate[2] None

Education and outreach activities (access guide or website, outreach initiative delivered at access sites, other education materials such as pamphlets.)

Significant Moderate[2,6,7] None

Water quality monitoring and/or pollution source identification and remediation programs.

Significant Moderate[2,4,5] None

[1]Porter County adopted a Greenspace Ordinance in October 2004. The new ordinance requires developers in unincorporated areas to set aside at least 10 to 20 percent of the land in new subdivisions for green space, while allowing those eligible the right to retain the same housing density by building on smaller lots. This Ordinance will result in protecting additional open space while allowing development to continue.

[2] The Indiana Coastal Grants Program has provided significant financial support to state and community efforts to improve the quantity and quality of public access opportunities within the coastal area. Approximately $900,000 of Indiana's Coastal Zone Management 306 and 306A funds is made available annually through a competitive grants program for planning, acquisition, improvements and education activities in the coastal area. The availability of these funds has resulted in the identification and design of new public access opportunities, on-the-ground creation of public access, and improvements to existing public access sites. Of particular note is the Marquette Greenway Plan that has brought together the communities Whiting, East Chicago, Gary, Hammond and Portage to create a master plan for acquiring and establishing a 200 foot wide path for biking, running and other recreation, allowing public access to Lake Michigan where heavy

industry currently resides. The Grants Program results in providing additional funding that directly improves the quality and quantity of coastal public access.

[3] The Department of Natural Resources has supported improvements to the development and use of GIS. Improvements include hiring a Department Coordinator, collection of data, and training. The Indiana Geological Survey also continues to support and enhance the Lakeshore Rim GIS Website. These efforts have resulted in GIS being more available and useful to agency programs for planning and regulatory activities.

[4] The Indiana Coastal Program is developing a Coastal Nonpoint Pollution Control Program and has established interagency working groups that have identified sources and appropriate remediation programs. Development of the Nonpoint Program has improved communication and cooperation between state agencies resulting in more effective actions to protect and improve coastal water quality.

[5] The Department of Environmental Management has developed a Beach Monitoring and Notification Plan (2004) for the Indiana Lake Michigan shoreline as required by the Federal BEACH (Beaches Environmental Assessment and Coastal Health) Act. Approximately 30 beaches are now monitored weekly for *E. coli* bacteria. All major beaches are now being monitored for, and reporting of, *E Coli* bacteria that result in a better informed and protected public.

[6] The Porter County Convention and Visitors Bureau published a Porter County Ecotourism Guide that highlights the ecology and biodiversity of the area. The Guide better informs the public about public access opportunities within the coastal area.

[7] Porter County and the Indiana Dunes National Lakeshore have entered into an agreement to build a joint visitors center to serve the county and National Lakeshore. The Center will better inform the public about public access opportunities within the coastal area and highlight the Dunes National Lakeshore.

Conclusion

Identify priority needs or major gaps in addressing the programmatic objectives for public access that could be addressed through a 309 Strategy.

- Although progress has been made with improvements to the DNR GIS, there remains a need to focus data collection for public access within the coastal area.
- A comprehensive inventory and assessment of public access in the coastal area is needed.
- A tri-county greenway plan could be developed that builds on the Marquette Greenway Plan and links existing public access venues together.
- Improved opportunities are needed to inform the public about existing public access opportunities in the coastal area. This could be in the form of a marketing strategy that includes user guides, radio advertisements, and highlights the relationship of recreation with health. Although county Visitor Bureau's do this to

varying extents, and Porter County Convention and Visitors Bureau is a good example, they need additional resources to enhance and coordinate their efforts.

What is this area for developing a 309 Strategy and allocating 309 funding?

High ☒ Medium ☐ Low ☐

Justification of Priority

Enhancing public access within Indiana's coastal area is recognized as an important means to enable in-state and out-of-state citizens to experience and enjoy a vast array of high quality natural, historic and cultural resources. The benefits of such opportunities span social, physical and economic factors and range from individuals learning about the existence and importance of unique resources, to better health and quality of life. Local communities within the coastal area are working hard to improve or expand trails and actively incorporate "greenway" planning into their communities. The Coastal Advisory Board has also supported access planning and improvements through the coastal grants program.

Strategy To Meet Public Access Needs

Goal 1: Improve the information available to the state regarding public access in the coastal area.

Program Change
The state will develop a comprehensive inventory of existing public access sites within the Indiana coastal area and incorporate the new information into the SCORP database. Following the collection of the new public access information the state will conduct an assessment of coastal user needs and perceptions in order to better understand how to best provide future public access opportunities in the coastal area. This activity will provide additional detail to the ILMCP by providing improved information DNR Division of Outdoor Recreation and is considered a "routine program changes."

Impact of the Change
The development of a coastal access inventory will result in a database of recreational, historical, aesthetic, ecological and cultural sites that are available for public enjoyment. This information will be added to the Indiana SCORP database and provide a more comprehensive identification of public access in the coastal area that will be used for establishing funding and outreach priorities. Collection of this information also contributes to the development and use of Public Access indicators that can be incorporated into the National Coastal Management Performance Measurement System (NCMPMS).

Appropriateness of the Change
The Assessment identified the need for a current inventory of public access sites in the coastal area as a major "gap." This project addresses that "gap." The last effort to conduct such a detailed inventory of the coastal area was conducted in 1996 and is no longer up to date. Inventories conducted for the SCORP are done statewide and do not have sufficient detail of public access opportunities within the coastal area. The DNR Division of Outdoor Recreation (DOR) has indicated a willingness to be the lead partner in this project because they recognize the increase demands for public access in the coastal area and the need for better information to assess needs and set funding priorities. DOR has the GIS capacity to handle the data collected, but lacks the "people power" to collect it at the level of detail needed.

Work Plan
FY 06
1) Hire and train "Intermittent" (temporary) employees for field survey.
2) Conduct field survey.
3) Enter information into SCORP GIS.

FY 07
1) Conduct coastal user needs assessment (survey).

Estimated Costs
It is anticipated that the work performed for this project will be done on a contractual basis.

Conducting the inventory is estimated to cost $80,000. Costs include four individuals for 3-4 months and travel expenses.

Entering the information into the SCORP database is estimated to cost $20,000. Costs include temporary GIS support for one month.

Conducting the coastal user needs assessment is estimated to cost $70,000. Costs include conducting a survey and providing a written report with analysis.

Estimated Costs Per Year

	FY 06	FY 07	FY 08	FY 09	FY 10
Inventory	50	-	-	-	-
Database entry	50	-	-	-	-
User needs assessment	-	70	-	-	-

Likelihood of Success
There is a high likelihood of success do to the strong support of DNR, the Coastal Advisory Board, and coastal counties for improving the public's knowledge about public access opportunities. The Division of Outdoor Recreation is particularly interested in working with the ILMCP because it recognizes that the demand for public access in the coastal area exceeds the ability of the state to respond to the need. One factor

contributing to this problem is the lack of adequate public education materials that inform the public where opportunities exist.

Goal 2: Improve the information available for the public regarding public access in the coastal area.

Program Change
Based on the public access inventory completed in FY 06, the state will publish one or more coastal access guides that cover the coastal area. This activity will provide additional detail to the ILMCP through the interpretation of DNR programs for the public and is considered a "routine program change."

Impact of the Change
The guide(s) will better inform the public about where public access sites are located resulting in their enhanced use and enjoyment.

Appropriateness of the Change
The Assessment identified the need to better inform the public about existing public access sites in the coastal area as a major "gap." Development of a coastal access guide(s) supports ongoing efforts by several of the coastal counties to expand and promote eco-tourism within the region.

Work Plan
FY 07
1) Develop and publish public access guide(s).

Estimated Costs
It is anticipated that the work performed for this project will be done on a contractual basis.

Writing and reproducing a public access guide is estimated to cost $30,000.

Estimated Costs Per Year

	FY 06	FY 07	FY 08	FY 09	FY 10
Develop and publish public access guide(s)	-	30	-	-	-

Likelihood of Success
The likelihood of success for this project is very high because of the strong support of DNR, the Coastal Advisory Board, and coastal counties for improving the public's knowledge about public access opportunities. The Division of Outdoor Recreation is particularly interested in working with the ILMCP because it recognizes that the demand for public access in the coastal area exceeds the ability of the state to respond to the need. One factor contributing to this problem is the lack of adequate public education materials that inform the public where opportunities exist.

COASTAL HAZARDS

Section 309 Programmatic Objectives

I. Direct future public and private development and redevelopment away from hazardous areas, including the high hazard areas delineated as FEMA V-zones and areas vulnerable to inundation from sea and Great Lakes level rise.
II. Preserve and restore the protective functions of natural shoreline features such as beaches, dunes, and wetlands.
III. Prevent or minimize threats to existing populations and property from both episodic and chronic coastal hazards.

Coastal Hazards Characterization

Characterize the general level of risk in Indiana from the following hazards:

Hazard	High Risk	Medium Risk	Low Risk
Hurricanes/Typhoons			✔
Flooding		✔	
Storm Surge			✔
Episodic Erosion	✔		
Chronic Erosion		✔	
Lake Level Fluctuations	✔		
Subsidence			✔
Earthquakes			✔
Tsunamis			✔
Other – Ice Damage		✔	

If the level of risk or state of knowledge about any of these hazards has changed since Program Approval, please explain. Also, identify any ongoing or planned efforts to develop quantitative measures for coastal hazards.

The cyclic long-term rise and fall of the lake level is a major factor that determines the degree of risk for the Indiana Lake Michigan shoreline. Lake levels reached a high in the late 1990's but dropped dramatically from 1997 to 2001. In spite of a temporary rebound in mid-summer of 2002, levels dropped to a near record low in 2003, with a slight increase again in 2004.

There are no ongoing or planned efforts to develop quantitative measures for this enhancement area.

Summarize the risks from inappropriate development in the state (e.g., life and property at risk, publicly funded infrastructure at risk, resources at risk.)

The majority of nonstructured shoreline is primarily shorefront parkland with little likelihood for future construction. Most of the rest of the Indiana Lake Michigan shoreline is already stabilized. Seawalls or rock revetments are generally constructed to protect residential structures and roads (e.g., Long Beach, Duneland Beach and Beverly

Shores). The western portion of Indiana's shoreline is heavily industrialized and largely protected by seawalls and breakwaters. The Corps of Engineers has used beach nourishment in several locations (i.e., Mt. Baldy, Ogden Dunes) to offset erosion caused by the past placement of Federally funded shore protection structures.

Management Characterization

Indicate changes to the State's hazards protection programs since Program Approval. For categories with changes:

- ***Identify and summarize the change;***
- ***Specify whether it was a 309 or other CZM driven change and specify funding source; and***
- ***Characterize the effect of the change in terms of both program outputs and outcomes***

Building setbacks/restrictions.

Significant Moderate None

Methodologies for determining setbacks.

Significant Moderate None

Repair/rebuilding restrictions.

Significant Moderate None

Restriction of hard shoreline protection structures.

Significant Moderate None

Promotion of alternative shoreline stabilization methodologies.

Significant Moderate None

Renovation of shoreline protection structures.

Significant Moderate None

Beach/dune protection.

Significant Moderate None

Permit compliance.

Significant Moderate None

Inlet management plans.

Significant Moderate None

Special Area Management Plans (SAMPs).

Significant Moderate None

Local hazards mitigation planning.

Significant Moderate None

Local post-disaster redevelopment plans.

Significant Moderate None

Real estate sales disclosure requirements.

Significant Moderate None

Restrictions on publicly funded infrastructure.

Significant Moderate None

Public education and outreach.

Significant Moderate None

Mapping/GIS/tracking of hazard areas.

Significant Moderate None

Discuss significant impediments to meeting the 309 programmatic objectives (e.g., lack of data, lack of technology, lack of funding, legally indefensible, inadequate policies, etc.)

There are two significant impediments to meeting the Coastal Hazards 309 programmatic objectives. The first impediment is the riparian ownership of the Lake Michigan shoreline. Private ownership extends to the Ordinary High Watermark (OHW) and as a result, the state has limited control over the uses above this datum. This particularly relates to erosion control structures, buildings, and ancillary structures. It is important to note that even in areas of privately owned sand dunes; the state does not regulate the use of the sand dunes as a natural resource area. Regulation of these structures is primarily the responsibility of local governments and subject to National Flood Insurance program requirements. There currently is no consistency in either the type of shoreline protection being used (seawall vs. revetment) or the standards for construction.

The second significant impediment is the lack of an adequate GIS-based inventory of structures along the shoreline. Without such an inventory that is regularly updated, the state has a difficult time determining legal ownership or condition of the structures. The lack of such an inventory also hampers the ability of the state to provide current knowledge or technical assistance to individual homeowners or local communities.

Conclusion

Identify priority needs or major gaps in addressing the programmatic objectives for this enhancement area that could be addressed through a 309 strategy.

- Local Hazard Mitigation Ordinance -Local communities have the primary responsibility for regulating construction activities and alterations above the OHW. Communities lack sufficient ordinances (i.e., setbacks, rolling easements, etc.) or technical expertise to adequately control development activities that might have an adverse affect on the protective function of natural resources.

- Shoreline Structures Inventory – Establish a GIS-based inventory of existing structures along the Indiana Lake Michigan shoreline. Annually update the inventory and make the results available to others.

- Survey Benchmarks-Indiana lacks a permanent set of survey benchmarks along the coastline that can be used to monitor shoreline change over time.

- Coastal Current Model – A better predictive model of nearshore coastal currents would improve the understanding of how sediments move along the Indiana coastline. Such a model could also be used to project the movement of pollutants and contaminates that enter Lake Michigan from tributaries and discharge points along the coast.

What priority is this area for developing a 309 strategy and designating 309 funding?

High ☒ Medium ☐ Low ☐

Justification of Priority

Coastal hazards remain a significant area of concern for the Coastal Program but lack of funding has prevented the program from implementing several key activities that could enhance the overall effectiveness of preventing future threats to existing populations and property. Indiana has a high occurrence of natural accretion. Most erosion is due to placement of shoreline structures.

Strategy To Meet Coastal Hazards Needs

Goal 1: Enhance the capacity of local communities to prevent and minimize coastal hazard threats to people and property.

Program Change
The state will develop one or more hazard mitigation model ordinances for adoption by local communities. The purpose of the ordinance(s) will be to protect the natural function of coastal features (e.g., lakefront dunes) that serve to prevent or minimize damage from flooding and/or erosion. This activity will provide additional detail to the ILMCP for the management of coastal resources by local officials and is considered to be a "routine program change."

Impact of the Change
The local adoption of hazard mitigation ordinances will allow communities to provide an enforceable means to manage uses and activities along the lakeshore in a way that preserves the natural function of the coastal resources. This activity will result in reduced damage and costs associated with erosion and/or flooding along the lakeshore.

Appropriateness of the Change
Episodic erosion and flooding were identified in the Assessment as high and medium risks respectively. A major "gap" identified in the Assessment was the need for local hazard mitigation ordinances. This project addresses that "gap." Because private ownership along Lake Michigan extends to the Ordinary High Watermark (OHW), the state has limited control over the uses above this datum. Even in areas of privately owned sand dunes, the state does not regulate the use of the sand dunes as a natural resource area. The regulation of erosion control structures, buildings, ancillary structures, and uses is primarily the responsibility of local governments. Local communities do not have the technical capability to develop appropriate authorities to adequately mange the lakeshore resources and this will provide them with the ability to do so.

One year of implementation is proposed in order to provide local communities with technical support.

Work Plan
FY 08
1) Form a workgroup with state and local officials to identify gaps and needs for hazard mitigation ordinances.
2) Survey and inventory coastal hazard mitigation ordinances currently used by lakeshore communities and other coastal states.
3) Develop local hazard mitigation ordinance(s).

FY 09
1) Provide technical support to local communities for adopting and implementing ordinance(s).

Estimated Costs
It is anticipated that the work performed for this project will be done on a contractual basis.

The development of a local hazard mitigation ordinance is estimated to cost $50,000. Costs are primarily for one fulltime person.

Implementation support in FY 09 is estimated to cost $50,000. Costs are primarily for one fulltime person.

Estimated Costs Per Year

	FY 06	FY 07	FY 08	FY 09	FY 10
Develop local ordinance			50		
Implementation				50	

Likelihood of Success
The DNR is very supportive of this project and particularly being able to work with local officials to enable them to manage critical coastal resources. This project has a high likelihood of success.

Goal 2: Improve the information available for mitigation planning to reduce the threats from coastal hazards.

Program Change
The state will develop a network of permanent reference sites that will be used to annually survey and monitor lake shoreline changes. The shoreline change information will be used to enhance the implementation of existing state and local regulatory and nonregulatory (i.e., sand nourishment) programs. This activity will provide additional detail to the ILMCP for the management of coastal resources and is considered to be a "routine program change."

Impact of the Change
Development of a shoreline change reference network is an important management tool that will provide critical information to Federal, state and local officials resulting in improved planning and permitting activities that better protect or restore coastal resources. This project will result in reduced damage and costs associated with erosion and/or flooding along the lakeshore.

Appropriateness of the Change
Episodic erosion and flooding were identified in the Assessment as high and medium risks respectively. A major "gap" identified in the Assessment was the need for establishing permanent shoreline change benchmarks. This project addresses that "gap.". The state currently lacks a permanent reference network to monitor shoreline change and therefore does not have adequate information to use for planning state sponsored projects or regulatory decision making.

Work Plan

FY 09

1) Establish shoreline change reference network.

Estimated Costs

It is anticipated that the work performed for this project will be done on a contractual basis.

Establishment of a permanent shoreline change reference network is estimated to cost $50,000.

Estimated Costs Per Year

	FY 06	FY 07	FY 08	FY 09	FY 10
Establish reference network				50	

Likelihood of Success

The DNR is very supportive of this project and particularly being able to work with local officials to provide them with improved information that they can use to manage critical coastal resources. This project has a high likelihood of success.

LAKE MICHIGAN RESOURCES

Section 309 Programmatic Objectives

I. Develop and enhance regulatory, planning, and intra-governmental coordination mechanisms to provide meaningful state participation in ocean/lake resource management and decision-making processes.

II. Where necessary and appropriate, develop a comprehensive ocean resource management plan that provides for the balanced use and development of ocean/lake resources, coordination of existing authorities, and minimization of use conflicts. These plans should consider, where appropriate, the effects of activities and uses on threatened and endangered species and their critical habitats.

Resource Characterization

Lake Michigan is the second largest of the Great Lakes and the only one entirely within the United States. The Lake is of regional importance as it is bordered, and shared, by the States of Indiana, Illinois, Michigan and Wisconsin. It is also of international significance because of its discharge to Lake Huron and the passage of fish between Lake Michigan and Lake Huron. Lake Michigan has unique conditions that support a wealth of biological diversity, including many plant and animal species found nowhere else in the world. Lake Michigan sand dunes, coastal marshes, tall grass prairies, savannas, forests, and fens all provide essential habitats for this diversity of life. The water of Lake Michigan serves many purposes. It supports large commercial and sport fishing industries. It provides industrial process and cooling water, and water for agricultural irrigation. Fleets of freighters pass over the Lake carrying bulk commerce items. Lake Michigan serves as a source of drinking water, as a place for swimming and fishing, as a scenic wonderland, and as a sink for municipal and industrial waste and runoff from the surrounding lands.

Today, the states surrounding Lake Michigan, and those bordering all of the Great Lakes, work together to coordinate, plan, study, protect, and restore the resources of the Lakes. Several organizations support these efforts. The first is the Great Lakes Commission (GLC). The GLC is a binational public agency dedicated to the use, management and protection of the water, land and other natural resources of the Great Lakes-St. Lawrence system. In partnership with the eight Great Lakes states and provinces of Ontario and Québec, the Commission applies sustainable development principles in addressing issues of resource management, environmental protection, transportation and sustainable development. The Commission provides accurate and objective information on public policy issues; an effective forum for developing and coordinating public policy; and a unified, system wide voice to advocate member interests.

The U.S. Environmental Protection Agency (EPA) also has significant authority over managing Great Lake Resources. Under the Clean Water Act, EPA has been given lead responsibility to develop a long-term comprehensive Lakewide Management Plan (LaMP) for Lake Michigan and Remedial Action Plans (RAPs) for specific Areas of Environmental Concern (AOCs). Indiana has been a full and active participant in the

LaMP process. In addition to LaMPs, the Clean Water Act also requires states to establish TMDLs, or Total Maximum Daily Loads, of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. In September 2004, EPA approved IDEMs submission of an *E.coli* TMDL for the Lake Michigan Shoreline.

The other comprehensive Lakewide resource management effort underway is the interagency management of fishery resources through the Great Lakes Fishery Commission (GLFC). The interagency management of fishery resources in the Great Lakes was formalized in the 1980s when A Joint Strategic Plan for Management of Great Lakes Fisheries (Great Lakes Fishery Commission 1980) was ratified by the heads of federal, state, provincial, and tribal resource agencies concerned with these water bodies. The Joint Plan implemented a framework for cooperative fishery management under the aegis of the Great Lakes Fishery Commission (GLFC). The Joint Plan established procedures for achieving a consensus approach among Great Lakes fisheries-management agencies. Fish communities in each lake must be managed as a whole. The Joint Plan ensures that each agency has a stake in the entire system and recognizes that the interactions among fish species are important in the overall management of the Lakes' fisheries.

It is through the GLC and the GLFC that Indiana: a) has a meaningful role in Lake Michigan resource planning and decision-making; and b) has developed a comprehensive and well-balanced lake resources management plan.

In the table below, characterize lake resources and uses of state concern and specify existing and future threats or use conflicts.

Resource or Use	Threat or Conflict	Degree of Threat (H/M/L)	Anticipated Threat or Conflict
Lake Michigan Fisheries	Overfishing, predation pollution, aquatic invasive species and habitat loss.	High	Affect commercial/sport fishing, recreation and tourism, transportation and manufacturing industries.
Dredged Material Disposal	Chemical contamination, beneficial use	High/Medium	Threat to wildlife and human health.
Water-borne Transportation	Oil spill, channel maintenance, aquatic invasive species.	High/Medium	Threat to wildlife and human health, commercial/sport fishing, recreation and tourism, transportation and manufacturing industries.
Water Quality	Nonpoint pollution, latent sediments.	Medium	Threat to wildlife and human health, commercial/sport fishing, recreation and tourism.
Ecosystem Health	Aquatic Invasive Species	High/Medium	Affect commercial/sport fishing, recreation and tourism and human health.
Underwater Archaeological Resources	Removal of artifacts, damage and/or destruction of resources.	High/Medium	Affects commercial and recreational diving, tourism, and educational opportunities.

Describe any changes in the resources or relative threat to the resources since Program Approval.

Dredging of a portion of the Grand Calumet River occurred in 2003-2004, pursuant to a 1998 Environmental Protection Agency Region V Clean Water Act Consent Decree and a Resource Conservation and Recovery Act Corrective Action Consent Order. Almost 800,000 cubic yards of PCB- and metals-contaminated sediment was removed from five miles of the Grand Calumet River. The contaminated material entered the river through outfalls from steel manufacturing operations. Clean up included construction of a 36-acre corrective action management unit (CAMU) to contain dredged sediment, a water treatment plant and a chemically assisted clarifier to treat the supernatant from dredging activities.

New requirements for Homeland Security have been implemented at the Federal, State and Local levels that affect marine transportation and traditional public access to Lake Michigan.

Management Characterization

Identify state lake management programs and initiatives developed since Program Approval. For categories with changes:

- ***Summarize the change***
- ***Specify whether it was a 309 or other CZM driven change and specify funding source***
- ***Characterize the effect of the change in terms of both program outputs and outcomes***

Statewide comprehensive Lake management statute.

New	Developing	None

Statewide comprehensive Lake management plan.

New	Developing	None

Single purpose statutes related to Lake resources.

New	Developing	None

Statewide Lake resources planning/working groups.

New	Developing[1,2]	None

Regional Lake resources planning efforts.

New[3,6]	Developing[4,5]	None

Lake resources mapping or information system.

New Developing None

Dredged material management planning.

New Developing None

Habitat research, assessment, monitoring.

New[7] Developing None

Public education and outreach efforts.

New[8,9] Developing None

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Other

New Developing None

[1]6217 Coastal Nonpoint Pollution Control Program - Following Program Approval, the Coastal Program began developing a 6217 Coastal Nonpoint Pollution Control Program using CZMA 306 funds. Interagency workgroups have been formed and development of the Program is well underway. The final draft the report is posted on the Coastal Program web site for review, and the document has been submitted for Federal review and approval. Development of the Nonpoint Program has improved communication and cooperation between state agencies resulting in more effective actions to protect and improve coastal water quality.

[2]*E.coli* Task Force – Although the Inter-Agency Technical Task Force on E.coli was formed in 1996 to cooperatively develop a strategy to eliminate the bacterial contamination of Indiana's beaches along the Lake Michigan shoreline, it has since evolved into an on-going collaboration among experts in federal, state, and local agencies. The Task Force continues to focus on major categories of potential sources, and individuals and organizations are invited to share their knowledge and experience in this process. The Task Force serves as an effective method of communication among responsible and interested entities involved in the issue of water quality. . Ongoing activities of the Task Force have improved communication and cooperation between state agencies resulting in more effective actions to protect and improve coastal water quality.

[3]Lake Michigan Lakewide Management Plan (LaMP) 2004 – The revised LaMP is funded by EPA and provides a status of the Lake Michigan ecosystem, and reports on progress toward achieving Lake Michigan goals described in LaMP 2000 and examples of significant activities completed since LaMP 2002. The LaMP update provides current information on the status of the Lake Michigan ecosystem and the progress of achieving stated goals.

[4]Great Lakes Interagency Task Force - On May 18, 2004, President Bush signed an Executive Order creating the Great Lakes Interagency Task Force. Under EPA's

leadership, the Task Force brings together ten Agency and Cabinet officers to work on restoring the Great Lakes. In addition, the President directed the creation of a regional collaborative process.

[5]Regional Watershed Planning - The Northwestern Indiana Regional Planning Commission (NIRPC) is leading an effort to develop a regional watershed management plan. This regional plan is addressing the Little Calumet-Galien Basin, which includes Lake Michigan and the Kankakee River Basin within Lake, Porter, and LaPorte Counties. The Regional Watershed Management Plan is scheduled to be completed by the end of 2005. The Indiana Department of Environmental Management (IDEM), under the Clean Water Act Section 205(j) Water Quality Planning Program, provided funding for the watershed planning program to NIRPC. The watershed Plan will provide a clear focus on those strategies that are most needed to enhance and protect important resources within the watershed. This plan will use the INLMCP 6217 document as the foundation and include additional action items.

[6]Indiana Aquatic Nuisance Species Management Plan – The National Aquatic Nuisance Species Task Force approved the state management plan in 2003pursuant to the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (P.L. 101-646) (NANPCA) provides an opportunity for federal cost-share support for implementation of the plan. The Indiana Aquatic Nuisance Species (ANS) Management Plan identifies feasible, cost-effective management practices and measures to be taken on by state and local programs to prevent and control ANS infestations in a manner that is environmentally sound. ANS Management Plan identifies those strategies that are critical to control and/or eradicate invasive species in the state.

[7]Fish spawning and habitat mapping – Research is being conducted by the University of Michigan to identify spawning and nursery areas in river mouths and connecting water bodies to the Indiana Lake Michigan shoreline and document which native species are utilizing these habitats for reproduction. This research is supported in part by CZMA 306 funds. Results of this research will identify those critical spawning/nursery habitats that need to be protected.

[8]2003/2004 “Live Dive” distance learning program – Hosted by the Coastal Program and funded by CZMA 306 funds, experienced divers present a highly interactive learning program on “Diving Into Biology”. Geared for students grade 5-8, the learning program allows students to observe and investigate the flora and fauna of Lake Michigan. The Live Dive provides students with first-hand knowledge on biological resources of Lake Michigan and increases their understanding and respect for those resources. This program is discontinued for 2005 due to financial difficulties experienced by the contractor.

[9]Lake Coastal Vista partnership for coastal water preservation – The Lake Vista project will develop a collaborative partnership between Michigan City Schools, Gary Schools, East Porter County Schools, community organizations and the Lake Michigan Coastal Program. The result of the partnership is; 1) students are educated in issues and community initiatives that build an understanding of coastal waters, 2) they understand the role of coastal waters in the economic viability of a community, and 3) students’ research skills are enhanced.

Conclusion

Identify priority needs or major gaps in addressing the programmatic objectives for this enhancement area that could be addressed through a 309 strategy.

There are several gaps that could potentially be addressed through a 309 strategy including:

- Statewide lake resources management plan (mapping, information system, assessment and needs);
- Comprehensive habitat research plan;
- Underwater archaeological resources assessment and management plan; and
- Implementation of E.coli Task Force priority needs.

What priority is this area for developing a 309 strategy and designating 309 funding?

High ☐ Medium ☒ Low ☐

Justification of Priority

Although the quality and quantity of lake resources is an issue of concern for the ILMCP, there are reasonable efforts underway to address the issue.

Strategy To Meet Lake Michigan Resources Needs

Goal: Develop a management plan for significant underwater archaeological resources in state waters of Lake Michigan.

Program Change
The state will conduct an inventory of significant underwater archaeological resources and develop a management plan for the enjoyment and protection of those resources. This project will provide additional detail to the ILMCP by providing better information and interpretation of state authorities for the management of coastal resources. This is considered to be a "routine program change."

Impact of the Change
Development of the management plan will begin by creating the first state inventory of known underwater archaeological resources. The management plan will identify relevant state and Federal laws, rules, regulations, and guidelines that apply to the resources. Specific recommendations will be provided regarding the best strategies for the state to use for providing appropriate access to, and long-term protection of, the resources. Having the inventory and management plan will enhance the historic, cultural, economic, and educational value of the resources and result in improved protection of the resources.

Appropriateness of the Change
The threat to underwater archaeological resources was identified as High/Medium in the Assessment. A major "gap" identified in the Assessment was the need for an underwater archaeological resources assessment and management plan. This project addresses that "gap." The DNR Division of Historic Preservation and Archaeology (DHPA) has general authority over historic and cultural resources in the state (312 IAC 6-3), including specific authority through administrative rule to protect abandoned shipwrecks for historic and recreational purposes (IC 14-21-1). Limited funding has prevented the DHPA from conducting a comprehensive inventory of known underwater archaeological resources or a plan for their protection. Completing this project will enable the state to fulfill its obligations under these authorities.

Work Plan
FY 10
1) Convene a workgroup of state, Federal, local officials and representatives of local scuba dive clubs.
2) Conduct an inventory of known underwater archaeological resources.
3) Complete a management plan for the appropriate access to, and long-term protection of, the resources.

Estimated Costs
It is anticipated that the work performed for this project will be done on a contractual basis.

Conducting the inventory is estimated to cost $50,000.

Development of the management plan is estimated to cost $50,000.

Estimated Costs Per Year

	FY 06	FY 07	FY 08	FY 09	FY 10
Conduct inventory	-	-	-	-	50
Develop management plan	-	-	-	-	50

Likelihood of Success
Several coastal counties are interested in developing or enhancing ecotourism in the area and recognize the important role that well documented and properly managed underwater archaeological resources would play in that endeavor. Because of this support here is a high likelihood of success for this project.

WETLANDS

Section 309 Programmatic Objectives

I. Protect and preserve existing levels of wetlands, as measured by acreage and functions, from direct, indirect and cumulative adverse impacts, by developing or improving regulatory programs.
II. Increase acres and associated functions (e.g., fish and wildlife habitat, water quality protection, flood protection) of restored wetlands, including restoration and monitoring of habitat for threatened and endangered species.
III. Utilize non-regulatory and innovative techniques to provide for the protection, restoration, and acquisition of coastal wetlands.
IV. Develop and improve wetlands creation programs.

Resource Characterization

Extent of coastal wetlands:

Wetlands Type	Extent (acres & year of data)	Trends (± acres/year)
Tidal	N/A	N/A
Non-tidal	N/A	N/A
Freshwater	34,185*	N/A
Publicly Acquired Wetlands	N/A	N/A
Restored Wetlands	N/A	N/A
Created Wetlands	N/A	N/A
Other	N/A	N/A

*Based on 1987 National Wetlands Inventory Maps

If information is not available to fill in the above table, provide a qualitative description of wetlands status and trends based on the best available information. Also, identify any ongoing or planned efforts to develop quantitative measures for this issue area. Provide explanation for trends.

Indiana lacks current quantitative data for most wetlands resources in the state. The most recent information, from a 1991 DNR study based on data collected in the early 1980's, indicated that there were approximately 813, 000 acres of wetland habitat statewide. Historical wetlands estimates based on NRCS hydric soils determinations in the three county region place one-time wetlands acreage at approximately 360,000 acres. 1986 inventories place the current amount of wetlands at approximately 63,000 acres, or about 82.5 percent loss of previous wetlands acreages in the region. Indiana ranks 4th among the 50 states in proportion of wetland acreage lost. Of the 343,124 total acres in the watershed 34,185 acres are classified as wetlands. Woody wetlands comprise 19, 380 acres. Emergent herbaceous wetlands account for an additional 8,200 acres. Open water accounts for the 6,600 acres remaining.

The coastal area is one region of the state where more current data exists for the extent of wetland acreage. In 2002 the Northwest Indiana Advance Identification of Wetlands Study (commonly referred to as the ADID project) was completed. The ADID project evaluated the value and function for wetlands greater than 5 acres in Porter, Lake and

La Porte Counties and generated GIS data that is now part of the Indiana Geological Survey's Lake Rim web site. The baseline maps used were from the 1980's National Wetlands Inventory and sites were field checked for accuracy. The ADID project does not present any trends data.

Important wetland types within this region include bogs and globally rare and threatened dune and swale complexes, in addition to wet prairies, forested wetlands, and marshes. It is generally accepted however, that wetland loss is continuing in the region largely from agricultural activities, commercial and residential development, water pollution, and invasive species.

There are no ongoing or planned efforts to develop quantitative measures for this enhancement area.

Describe direct and indirect threats to coastal wetlands, both natural and man-made:

Threat	Significance		
	High	**Medium**	**Low**
Development/Fill	✔		
Erosion			✔
Pollution	✔		
Channelization/Drainage		✔	
Nuisance/exotic Species	✔		
Freshwater input			✔
Lake Level Fluctuations		✔	
Other - **Fragmentation**	✔		

For threats identified as high or medium, provide the following information:

- **Characterize the scope of the threat**
- **Describe recent trends**
- **Identify impediments to addressing the threat**

Development/Fill – It is not possible to accurately determine the full and accurate extent of wetlands loss resulting from development activities because Indiana does not have a current inventory of wetlands and does not track Clean Water Act 401 Water Quality Certificates for wetland alterations. The Indiana Department of Environmental Management, Office of Water Quality oversees the 401 Certification program and has indicated that even without specific data for wetlands alterations, they believe development related activities remain a significant source of wetland loss in Indiana. They reference that approximately one-third of wetland permits are for activities in the coastal area.

Indiana has adopted a wetlands mitigation policy for most wetlands likely to be disturbed during construction activities. The mitigation policy is in effect through an interagency Memorandum of Understanding (MOU) that covers projects sponsored by the Indiana Department of Transportation. Construction of replacement wetlands has involved enhancement of existing wetlands, restoration of drained wetlands and creation of wetlands where no wetlands existed before.

Pollution –Wetland plants and soils have the capacity to trap and filter a wide range of pollutants. However, an excess amount of nutrients, pathogens, sediments, and toxic chemicals can alter or destroy the wetland system. Wetlands within the Indiana coastal area are impacted by all of these pollutants to some extent. Although nutrient enrichment and bacterial contamination are fairly common problems associated with nonpoint pollution, several wetland areas in close proximity to the industrialized areas of the coast around Gary and Michigan City also suffer from toxic contamination and have been classified as Superfund and Brownfield sites. Insufficient funds are the primary impediment to addressing wetlands impacted by toxic contamination.

Channelization/Drainage – The effects drainage of low-lying lands has on wetlands is a concern throughout the coastal area. State legislation provides that drainage is largely controlled through county drainage boards. The Drainage Code is primarily concerned with excess water removal. The focus of its impact is upon regulated drains. The county surveyor is required to classify all regulated drains as being in need of: (1) reconstruction; (2) periodic maintenance; or (3) removal. These classifications are themselves dependent upon the adequacy of the waterway to properly drain lands affected. Legal drain management can alter hydrology and adversely impact wetland habitat.

Nuisance/exotic species – Invasive species can threaten the diversity or abundance of native species and the ecological stability of the whole habitat. Invasive species displace native species by outcompeting natives for breeding sites, food, and other needed resources. They disrupt food webs, degrade habitats and alter biodiversity. Two common invasive species found in Indiana wetlands are Purple Loosestrife (*Lythrum salicaria*) and Common Reed (*Phragmites australis)*. Other invasive plant species include Bluegreen Algae, Brazilian elodea, Hydrilla, Eurasian watermilfoil, Reed canary grass, Hybrid cattail, and narrow leaf cattail. There is little information available on the distribution and extent of potentially invasive plant species' populations in Indiana, which makes it difficult to objectively rank invasive species. Many concerned agencies and organizations formed an Invasive Plant Species Assessment Working Group (IPSAWG) to deal with this issue. The goal of the group is to develop an assessment tool to determine which plant species may threaten natural areas in Indiana due to invasion and to develop recommendations regarding the use of that specific plant species.

Lake Level Fluctuation – The cyclic long-term rise and fall of lake level influences the hydrodynamics of the freshwater regime of wetlands along the Indiana Lake Michigan shoreline. Lake levels reached a high in the late 1990's but dropped dramatically from 1997 to 2001. In spite of a temporary rebound in mid-summer of 2002, levels dropped to a near record low in 2003, with a slight increase again in 2004.

Fragmentation –The problem of wetland fragmentation cannot be accurately quantified, but the general sense of individuals concerned with wetlands loss in Indiana generally agrees it is a serious and growing threat to wetlands function and productivity. Fragmentation occurs largely from residential and commercial development, road building, and drainage improvements.

Management Characterization

Within each of the management categories below, identify changes (positive and negative) since Program Approval.

Mechanism	Changes Since Program Approval
Regulatory program	**Significant** Moderate None
Wetlands protection policies and standards	Significant **Moderate** None
Assessment methodologies	Significant Moderate **None**
Impact analysis	Significant Moderate **None**
Restoration/enhancement programs	Significant **Moderate** None
SAMPs	Significant Moderate **None**
Education/outreach	Significant Moderate **None**
Wetlands creation programs	Significant Moderate **None**
Mitigation banking	Significant **Moderate** None
Mapping/GIS/tracking systems	Significant Moderate **None**
Acquisition programs	Significant **Moderate** None
Publicly funded infrastructure restrictions	Significant Moderate **None**
Other	Significant Moderate **None**

For categories with changes identified as significant or moderate, provide the following information for each change:

- **Characterize the scope of the change**
- **Describe recent trends**
- **Identify impediments to addressing the change**

Regulatory Program – The Indiana General Assembly passed House Enrolled Act 1798 (HEA 1798) and HEA 1277 during the 2004 legislative session. HEA 1798 was enacted on an override of a Governor veto. These enactments are largely in response to the U.S. Supreme Court's SWANCC decision, which declared isolated wetlands are outside the U.S. Army Corps of Engineers permitting authority under section 404 of the Clean Water Act. HEA 1798 creates a new isolated wetlands regulatory permit program, and HEA 1277 further amended certain provisions of HEA 1798. Together, these enactments require compensatory mitigation for permitted activities, allow high-quality wetlands be removed from potential development, allow activities to affect some isolated wetlands, and exempt some isolated wetlands from regulation. The legislation defines three classes of isolated wetlands generally based on the level of disturbance, support of wildlife or aquatic habitat, hydrologic function, and extent of invasive species. Class III is considered the highest-quality isolated wetlands and requires an individual permit for any proposed alteration. Class II isolated wetlands may require an individual permit

depending on the level of potential impact. Class I isolated wetlands are covered by a state general permit and do not require an individual permit. Isolated wetlands are exempt from regulation if they were voluntarily created; are incidental features of lawns or landscaped areas, agricultural lands, roadside/irrigation ditches, or drainage control structures; fringe wetlands associated with private ponds; wetlands associated with water bodies or wetlands that have been created from dry land to collect and retain water for agricultural, commercial, industrial or aesthetic purposes. Isolated wetlands can also be exempt from the law based on their size, class, and the number of each type of wetland on a given tract of land.

Wetlands protection policies and standards – Indiana is in the process of implementing new rules for isolated wetlands as required by HEA 1798 and HEA 1277 (see above).

Restoration/Enhancement Programs – Following Federal approval of the Indiana Coastal Program annual grant funds received from NOAA were used to establish a Coastal Grants Program. The purpose of Indiana's Lake Michigan Coastal Grants Program is to protect and restore coastal: natural, cultural and historical resources. Indiana made $975,000 available in 2003 and $900,000 in 2004 for the competitive grants program. The Coastal Grants Program is in addition to $1.6 M made available to local and state entities in 2001 from the Great Lakes Coastal Restoration Grant program. Grant funds have been awarded to organizations, state agencies, and local communities for projects that include acquisition, restoration and enhancement of wetland areas. The Coastal Grants Program is the only new effort in Indiana specifically in support of wetlands conservation and has resulted in direct improvements to the health and quality of wetlands within the coastal area.

Mitigation Banking – In October 2002, the U.S. Corps of Engineers, Natural Resources Conservation Service, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, Indiana Department of Environmental Management, and Indiana Department of Natural Resources entered into an *Interagency Coordination Agreement On Wetland Mitigation Banking Within The State Of Indiana*. The Agreement covers the mitigation of unavoidable wetland impacts due to the excavating, filling, flooding or draining of waters of the State and U.S. as regulated under the laws of Indiana, Section 404 of the Clean Water Act and the wetland conservation provisions of the Food Security Act of 1985. The Agreement includes the criteria for establishing, owning, operating and maintaining wetland mitigation banks. It also establishes the criteria for authorizing applicants to withdraw credits from a wetland mitigation bank to use as compensatory mitigation. The Agreement provides a consistent and agreed upon use of wetland mitigation banking in the State of Indiana.

Acquisition programs – The Coastal Program has included acquisition as an eligible category in the Coastal Grants Program and has funded acquisition of wetland areas adjacent to the Deep River Headwaters land base.

Conclusion

Identify priority needs or major gaps in addressing the programmatic objectives for this enhancement area that could be addressed through a 309 strategy.

- Baseline mapping – A current mapping and inventory of wetlands is needed. The baseline maps would be useful for permitting, restoration planning and research activities. The maps should be updated regularly in order to keep the information current and to establish a status and trends profile for wetlands in the coastal area.

- Wetlands assessment methodologies – Indiana currently lacks a consistent functional assessment methodology. Adopting a functional assessment methodology would greatly enhance the permitting effectiveness of the state.

- Education and outreach program – A dedicated wetlands education and outreach program that focuses on wetland values would help inform the public and decision makers as to the importance of wetlands.

- Comprehensive wetlands restoration/enhancement program – Currently restoration activities are carried out on a project-by-project basis in the absence of a long-term comprehensive strategy. Having a long-term strategy would help identify needs and set priorities.

- Drainage impacts evaluation – Conduct an assessment of the extent that construction and maintenance of legal drains are impacting wetland areas.

- Acquisition strategy – One of the most effective ways to ensure the long-term protection of critical wetlands is through the purchase of fee simple title or easements. The state needs a long-term strategy for acquiring wetlands in the coastal area.

What priority is this area for developing a 309 strategy and designating 309 funding?

High ☒ Medium ☐ Low ☐

Justification of Priority

There is a high level of interest among state agencies, the CAB, local communities, and the public in furthering wetlands conservation within the Indiana coastal area. The overwhelming response to the Coastal Grants Program for wetlands restoration, acquisition and enhancement is a clear demonstration of that interest. There is also a corresponding opportunity and need to improve the basic infrastructure required to adequately address wetlands mapping, assessment, planning or education. Providing support for these activities with a focus on wetlands within the coastal area will also have application and benefit to statewide wetland conservation efforts.

Strategy To Meet Wetlands Needs

Goal: Complete an inventory of coastal wetlands.

Program Change
Indiana's Counties, in cooperation with the State of Indiana, are obtaining spring 2005, leaf-off, color-infrared, orthorecitified statewide aerial photography. The state will adopt a methodology to accurately delineate coastal wetland types from the new aerial photography and the resulting maps will be incorporated into state planning and regulatory programs. These activities will provide additional detail to the ILMCP for the management of coastal wetland resources and are considered to be "routine program changes."

Impact of the Change
The development of coastal wetland maps will allow the state and local communities to identify and document the existence of critical coastal wetlands. This will result in less subjectivity in the identification of coastal wetlands and will lead to enhanced protection of the resources. Having detailed wetland maps will also result in improved documentation of the diversity of wetland resources—some of which are found nowhere else in the state—that can be used for improving education about the importance of wetland resources. Collection of this information also contributes to the development and use of indicators for wetland resources that can be incorporated into the National Coastal Management Performance Measurement System (NCMPMS).

Appropriateness of the Change
The most significant finding of the Assessment was the need for current quantitative data for wetland resources statewide. Although the Northwest Indiana Advance Identification of Wetlands Study (commonly referred to as the ADID project) was completed for Porter, Lake and La Porte Counties in 2002, the study was based on 20-year old baseline maps from the 1980's National Wetlands Inventory. In addition, the ADID project only evaluated the value and function for wetlands greater than 5 acres. Developing new maps addresses a major "gap" identified in the Assessment and fills a critical void in the regulation and protection of coastal wetlands, including the ability to evaluate future trends.

Work Plan
FY 06
1) Adopt wetlands identification methodology and conduct analysis of photography.

FY 07
1) Field check and finalize photo delineation of maps.

Estimated Costs
It is anticipated that the work performed for this project will be done on a contractual basis.

The analysis of photography in FY 06 is estimated to cost $50,000. Costs are primarily for analysis and computing time.

Field checking and finalizing the photo delineation of maps in FY 07 is estimated to cost $50,000. Costs are primarily for one individual for six months as well as computing and reproduction.

Estimated Costs Per Year

	FY 06	FY 07	FY 08	FY 09	FY 10
Develop methodology and conduct analysis	50				
Field check maps		40			
Finalize maps		10			

Likelihood of Success

The IDEM Office of Water will be the lead partner for this project and is very supportive because they recognize the information gap they have in knowing where wetland resources are located. A lack of detailed wetland maps has hampered the states ability to adequately implement its wetland protection authorities and to quantify wetland trends. The likelihood of success for this project is very high.

CUMULATIVE AND SECONDARY IMPACTS

Section 309 Programmatic Objectives

I. Develop, revise or enhance procedures or policies to provide cumulative and secondary impact controls.

Resource Characterization

Identify areas in the coastal zone where rapid growth or changes in land use require improved management of CSI. Provide the following information for each area:

- ***Type of growth or change in land use (i.e., residential, industrial, etc.)***
- ***Rate of growth or change in land use***
- ***Types of CSIs***

The Indiana coastal area is influenced by land-use changes taking place within and outside of its coastal boundary. Two general changes in land use are occurring, abandonment of historically industrial uses, and sprawl. The greatest threat associated with the abandonment of industrial sites is the legacy of chemical contamination they leave behind. Sprawl, defined as haphazard growth, represents a change in use of coastal areas or uses and continues to destroy farmland, wetlands, and forests. Uncontrolled growth can result in increased runoff and groundwater contamination. One of the significant issues associated with new development is the use of on-site septic systems. The inappropriate siting, poor maintenance, and failures leads to degraded water quality and health risks. It has been documented that the replacement of natural landscapes with impervious surfaces such as roads, parking lots and rooftops can increase bacterial and chemical pollutant levels, change the physical structure of streams and creeks, and reduce the number of species and aquatic life. Studies show that if a watershed is covered by more than ten percent with impervious surfaces, the rivers, streams and lakes within the watershed become seriously degraded.

Drainage of low-lying lands is also a concern throughout the coastal area. State legislation provides that drainage is largely controlled through county drainage boards. The Drainage Code is primarily concerned with excess water removal. The focus of its impact is upon regulated drains. The county surveyor is required to classify all regulated drains as being in need of: (1) reconstruction; (2) periodic maintenance; or (3) vacation. These classifications are themselves dependent upon the adequacy of the waterway to properly drain lands affected. Legal drain management can alter hydrology and destroy or limit necessary habitat for Lake Michigan fisheries, as well as transport pollutants that impair water quality. Several major waterways and drainage ditches carry pollutants through the coastal area and discharge them into Lake Michigan.

Urban sprawl and inner city decline are happening almost everywhere, but it is very apparent in Northwest Indiana. Statistics from Lake County show that uncontrolled urban sprawl is occurring with abandonment of housing in the inner cities and older suburbs. During the last decade, 18,000 new housing units were created in new areas, while 11,000 were left vacant or demolished in Gary, Hammond, and East Chicago. Much building has gone on south of the three northern cities despite the fact that Lake County lost 8% of its population between 1980 and 1990 and has grown by about 1% since

then. It is reported that Porter County is losing 1,000 acres per year to sprawl development, which brings with it air and water pollution. Increased flooding is also a threat as sprawl degrades wetlands in Lake and Porter Counties in Northwest Indiana.

Identify areas in the coastal zone (by type or location) which possess sensitive coastal resources (e.g., wetlands, waterbodies, fish and wildlife habitats, threatened and endangered species and their critical habitats) and require a greater degree of protection from the cumulative or secondary impacts of growth and development.

Area	CSI Threats/Sensitive Coastal Resources
Indiana Dunes State Park	Wetlands, fish and wildlife, threatened and endangered species, human health.
National Lakeshore Park	Wetlands, fish and wildlife, threatened and endangered species, human health.
Salt Creek south of Valparaiso	Wetlands are threatened actions of County Drainage Board
Toleston Strandplain Macrosite (Grand Calumet River Dune and Swale)	Wetlands, fish and wildlife habitat, threatened and endangered species and their critical habitat
Hoosier Prairie/Oak Ridge Prairie Complex	Wetlands, fish and wildlife habitat, threatened and endangered species and their critical habitat
Hobart Prairie Grove	Wetlands, fish and wildlife habitat, threatened and endangered species and their critical habitat
Moraine Nature Preserve	Wetlands, fish and wildlife habitat, threatened and endangered species and their critical habitat
Ambler Flatwoods	Wetlands, fish and wildlife habitat, threatened and endangered species and their critical habitat

Management Characteristics

Identify significant changes in the state's ability to address CSI since Program Approval (i.e., new regulations, guidance, manuals, etc.) Provide the following information for each change:

- ***Characterize the scope of the threat***
- ***Describe recent trends***
- ***Identify impediments to addressing the threat***
- ***Identify successes in improved management***

6217 Nonpoint Pollution Control Program – The Indiana Coastal Program is developing a 6217 Nonpoint Pollution Control Program using CZMA 306 funds. Progress to date includes the formation of four workgroups to address Agriculture, Marinas, Urbanization, and Wetlands/Hydromodification. Draft chapters for the 6217 Plan are currently being reviewed. In addition, the Coastal Program has developed a series of Fact Sheets to explain the cause and threat of nonpoint sources of pollution. The following Fact Sheets have been produced; Agricultural Conversion, Clean Marinas, General Nonpoint Source Pollution, Protecting Indiana's Coastal Waters, Urban Conservation, and Wetland Conservation.

E.coli Task Force – Although the Inter-Agency Technical Task Force on *E.coli* was formed in 1996 to cooperatively develop a strategy to eliminate the bacterial contamination of Indiana's beaches along the Lake Michigan shoreline, it has more

recently evolved into a collaboration among experts in federal, state, and local agencies. The Task Force continues to focus on major categories of potential sources, and individuals and organizations are invited to share their knowledge and experience in this process. The Task Force serves as an effective method of communication among responsible and interested entities involved in the issue of water quality.

Sediment and Erosion Control Handbook Update – The Division of Soil Conservation is currently updating the *Indiana Stormwater Quality Manual* formerly known as the *Indiana Handbook for Erosion Control*. In addition to erosion and sediment control, the updated handbook will include information, specifications, and measures that will address minimization of post construction pollutants. The Division of Soil Conservation received an EPA Section 319 grant through IDEM to add this important resource issue to Indiana's manual. The final product will be available within two years.

Storm Water Runoff Permit – IDEM used EPA 319 funds to revise the threshold for requiring a storm water runoff permit from 5 acres to 1 acre. The new “Rule 5” states that any "project site owner" engaged in construction-related activities (meaning any manmade change of the land surface, including removing vegetative cover that exposes the underlying soil, excavating, filling, transporting, and grading) that disturb one (1) or more acres of land may be required to obtain a "Rule 5" storm water runoff permit under 327 IAC 15-5, from the IDEM Office of Water Quality.

Storm Water Management Plans **–** Indiana has designated MS4 areas and is now implementing Clean Water Act Provisions pertaining to MS4 areas. MS4s are municipal separate storm sewer systems that convey rainwater and may include roads with drainage systems, municipal streets, curbs, gutters, ditches or storm drains. The MS4 Rule, or Rule 13, is required by the federal Clean Water Act and requires about 170 communities and other urban entities in Indiana to develop Stormwater Management Plans that address six minimum control measures that will reduce the amount of pollutants entering the waterway as a result of storm water run-off. The use of these six measures may not be adequate to protect coastal resources. Criterion and an evaluation of the adequacy of these six measures are needed.

Porter County Greenspace Ordinance – Porter County adopted a Greenspace Ordinance in October 2004. The new ordinance requires developers in unincorporated areas to set aside at least 10 to 20 percent of the land in new subdivisions for green space, while allowing those eligible the right to retain the same housing density by building on smaller lots.

Planning with POWER **–** The *Planning with POWER* project is coordinated by the Illinois-Indiana Sea Grant College Program and the Purdue University Cooperative Extension Service (CES). It is a statewide educational program that links land use planning with watershed planning at the local level. The project is designed to empower communities to prevent and solve natural resource problems resulting from changing land use in growing watersheds and to empower local officials to incorporate watershed protection measures into comprehensive land use plans.

Clean up of contaminated sediments in the Grand Calumet River - Dredging of the Grand Calumet River occurred in 2003-2004, pursuant to a 1998 Environmental Protection Agency Region V Clean Water Act Consent Decree and a Resource Conservation and Recovery Act Corrective Action Consent Order. Almost 800,000 cubic

yards of PCB- and metals-contaminated sediment was removed from five miles of the Grand Calumet River. The contaminated material entered the river through outfalls from steel manufacturing operations. Clean up included construction of a 36-acre corrective action management unit (CAMU) to contain dredged sediment, a water treatment plant and a chemically assisted clarifier to treat the supernatant from dredging activities.

Conclusion

Identify priority needs or major gaps in addressing the programmatic objectives for this enhancement area that could be addressed through a 309 strategy (e.g., inadequate authority, data gaps, inadequate analytical methods, lack of public acceptance, etc.).

- Criterion need to be developed and an evaluation conducted of the adequacy of the six Stormwater Management Plan measures in protecting coastal resources.

- County Health Departments need improved guidelines and procedures that reflect the best available technology for the placement, design, and installation of coastal on-site septic systems.

- The *E.coli* Task Force has identified three projects that could be addressed through a 309 strategy:
    - A project that would allow the development of GIS-based maps of sewered and septic communities within a focus area.
    - A project that would develop and/or enhance source identification tracking methods, support the continued development of real-time test methods and/or support development of improved indicators and associated procedures.
    - A Lake Michigan Basin scaled project to enhance the creation and utilization of models in the development of TMDLs. Currently the models created for the existing TMDLs (Lake Michigan, Little Calumet River, Salt Creek, and Trail Creek) work independently of one another. This project is proposed to find the components of each model that can be correlated to allow the models to flow together (in other words speak with one another).

What priority is this area for developing a 309 strategy and designating 309 funding?

High ☒ Medium ☐ Low ☐

Justification of Priority

The State of Indiana recognizes the importance of addressing cumulative and secondary impacts particularly in order to control nonpoint pollution. The state has invested significantly in this issue and will continue to do so in the near future. Additional funds from 309 would allow the Coastal Program to direct more attention to specific issues that may be unique or important to the coastal area.

Strategy To Meet CSI Needs

Goal 1: Enhance the capacity of County Health Departments to ensure the proper functioning of on-site septic systems.

Program Change
The state will develop new guidelines and procedures for adoption by the Indiana State Department of Health (ISDH) and County Health Departments. The guidelines and procedures will reflect the best available technology for the placement, design, and installation of coastal on-site septic systems. This activity will provide additional detail to the ILMCP by improving the quality of information used for the management of coastal resources and is considered to be a "routine program change."

Impact of the Change
Having guidelines and procedures in place that reflect the best available technology for the placement, design, and installation of on-site septic systems will result in reduced system failures and reduced releases of phosphorus, pathogens, nitrogen, and other pollutants that contaminate coastal resources and pose a risk to human health. This project will contribute directly to protecting and enhancing the quality of coastal resources and public health.

Appropriateness of the Change
The Assessment identified the use of improperly functioning onsite septic systems as a source of nonpoint pollution in the coastal area. A major "gap" identified in the Assessment was the need to assist County Health Departments deal with onsite septic systems. This project addresses that "gap." When properly planned, designed, installed, and operated/maintained an on-site sewage disposal system can effectively remove or treat pathogens, BOD, and nutrients in human sewage. Working with ISDH and County Health agents to develop guidelines and procedures that reflect the best available technology for the placement, design, and installation of on-site septic systems. This project also contributes to implementation of the Indiana 6217 Nonpoint Pollution Control Program.

Once the guidelines and procedures are developed, two years of implementation are proposed in order to provide technical support to County Health Departments.

Work Plan
FY 08
1) Assess existing guidelines and procedures used by County Health Departments for onsite septic system placement, design and maintenance.
2) Identify gaps in existing guidelines and procedures.
3) Develop new guidelines and procedures.

FY 09
1) Work with County Health agents to implement guidelines and procedures.

FY 10
1) Work with County Health agents to implement guidelines and procedures.

Estimated Costs
It is anticipated that all of the work performed for this project will be done on a contractual basis.

Development of guidelines and procedures in FY 08 is estimated to cost $50,000. Costs are primarily for one fulltime person.

Technical support to County Health Departments to implement guidelines and procedures through FY 09 and FY 10 is estimated to cost $50,000 each of the two years. Costs are primarily for one fulltime person.

Estimated Costs Per Year

	FY 06	FY 07	FY 08	FY 09	FY 10
Develop Guidelines	-	-	50	-	-
Implementation	-	-	-	50	50

Likelihood of Success
Being able to reduce sources of nonpoint pollution is a priority for the state. This project has broad support from state and local governments and the likelihood of success is high.

Goal 2: Improve the information available regarding the location of on-site septic systems.

Program Change
The state will develop a GIS map of onsite septic system locations in a selected coastal community to be adopted by that community to support implementation of ISDH Residential Sewage Disposal provisions. This activity will provide additional information to state, county, and local officials to assist with implementation of ISDH authorities and is considered to be a “routine program change.”

Impact of the Change
The development of a GIS map showing the location of existing onsite septic systems is a valuable management tool that will improve the planning, monitoring and enforcement capability of County Health agents.

Appropriateness of the Change
Locating existing systems on a GIS map will improve the ability of County Health agents to monitor and enforce ISDH rules. A major “gap” identified in the Assessment was the need for GIS maps of sewered and septic communities. This project addresses that “gap.” This project also contributes to implementation of the Indiana 6217 Nonpoint Pollution Control Program and recommendations from the *E. coli* task Force.

Work Plan

FY 08

1) Select a coastal community and develop a GIS map of existing onsite septic systems.

Estimated Costs

It is anticipated that the work performed for this project will be done on a contractual basis.

Development of a GIS map of existing onsite septic systems in FY 08 is estimated to cost $50,000.

Estimated Costs Per Year

	FY 06	FY 07	FY 08	FY 09	FY 10
Develop GIS map	-	-	50	-	-

Likelihood of Success

Being able to reduce sources of nonpoint pollution is a priority for the state. This project has broad support from state and local governments and the likelihood of success is high.

LAKE DEBRIS

Section 309 Programmatic Objectives

I. Develop or revise programs that reduce the amount of lake debris in the coastal zone.

Lake Debris Characterization

Lake debris associated with the Lake Michigan shoreline of Indiana is largely a result of recreational activities occurring near or on the waters of Lake Michigan. In 2003 the Indiana Coastal Cleanup identified the top three types of debris recovered during lake debris cleanups consisted of cigarettes, caps and lids, and food wrappers. Cigarettes were the number one item and accounted for over one quarter of all the debris items.

In the table below, characterize the extent of lake debris and its impact on the coastal zone.

Source	**Impact** (Significant/Moderate/Insignificant)	**Type of Impact** (aesthetic, resource damage, etc.)
Recreational, fishing and boating	Insignificant	Aesthetic and potential living resource damage
Commercial fishing	Insignificant	Aesthetic and potential living resource damage
Tourists	Moderate	Aesthetic
Industry	Insignificant	Aesthetic
General public	Moderate	Aesthetic

If any of the sources above, or their impacts, has changed since Program Approval, please explain.

There have not been any changes since Program Approval.

Do you have beach clean-up data? If so, how do you use the information?

Several groups conduct annual shoreline and subsurface lake cleanups and the recovery data is submitted to the National Coastal Cleanup Campaign. The Coastal Program uses the clean-up data in educational programs and materials.

Management Characterization

Indiana state and local governments have worked aggressively since 1990 to comply with House Enrolled Act 1240 (HEA 1240) and to meet Indiana's goal of 50% waste reduction. HEA 1240 called for the formation of local solid waste management districts (regional or local) to plan and implement waste reduction and recycling programs at the local level. Lake, Porter, and Laporte counties each have their own waste management district. HEA 1240 also gave responsibilities to the Departments of Environmental Management (IDEM), Commerce (IDOC) and Administration (IDOA). The three Departments have been working effectively with each other to reduce the waste stream. IDEM leads efforts to assist local recycling programs through grant programs that support equipment purchase and education. IDOC focuses on building markets for

recyclables, and IDOA works on internal state government programs including reuse efforts, recycling collection, etc. In 2001 Indiana reported it had reached a waste diversion level of 35%, well on its way to meeting the 50% goal.

For the categories below, identify state Great Lake management programs and initiatives developed since Program Approval:

Program	Status*	Funding Source (309 or other)
State/local program requiring recycling	Yes **No** Developing	Ongoing with other state funds.
State/local program to reduce littering	Yes **No** Developing	Ongoing with other state funds.
State/local program to reduce wasteful packaging	Yes **No** Developing	Ongoing with other state funds.
State/local regulations constant with Marine Plastic Pollution Research and Control Act	Yes **No** Developing	Ongoing with other state funds.
Lake debris concerns incorporated into harbor, port, marina and coastal solid waste management plans	Yes **No** Developing	Ongoing with other state funds.
Education and outreach programs	**Yes** No Developing	IDEM-Recycling Grant Program Coastal Program Section 306
Other	Yes **No** Developing	

* All of the listed categories had ongoing implementation activities within the coastal area at the time of Program Approval in August 2002.

For changes identified above provide a brief description of the change;

- ***Characterize the scope of the threat***
- ***Describe recent trends***
- ***Identify impediments to addressing the threat***
- ***Identify successes***

In 2003 Porter County was awarded a $22,246 Public Education Promotion (PEP) grant to support educational programming and raising awareness of waste recycling.

The Indiana Coastal Program published a public awareness brochure in September of 2002 entitled “Protecting Indiana’s Coastal Waters.

Conclusion

Identify priority needs or major gaps in addressing the programmatic objectives for this enhancement area that could be addressed through a 309 strategy.

The beach clean-ups are currently conducted only at selected sites along the lakeshore. The clean-ups could be more comprehensive and cover larger areas of the lakeshore.

What priority is this area for developing a 309 strategy and designating 309 funding?

High ☐ Medium ☐ Low ☒

Justification of Priority

There are effective management programs and incentives in place to ensure that continued progress is being made to reduce the waste stream.

SPECIAL AREA MANAGEMENT PLANNING

Section 309 Programmatic Objectives

I. Develop and implement special area management planning in coastal areas applying the following criteria:
   - Areas including significant coastal resources (e.g., threatened and endangered species and their critical habitats, wetlands, waterbodies, fish and wildlife habitat) that are being severely affected by cumulative or secondary impacts;
   - Areas where a multiplicity of local, state, and federal authorities hinder effective coordination and cooperation in addressing coastal development on an ecosystem basis;
   - Areas with a history of long-standing disputes between various levels of government over coastal resources that has resulted in protracted negotiations over the acceptability of proposed uses;
   - There is a strong commitment at all levels of government to enter into a collaborative planning process to produce enforceable plans;
   - A strong state or regional entity exists which is willing and able to sponsor the planning program.

Resource Characterization

The Indiana coastal area currently has three special area management planning areas. One involves the Remedial Action Plan for the Grand Calumet River pursuant to the *Great Lakes Water Quality Agreement*; the second is the Marquette Greenway Plan currently under development; the third is the Little Calumet Galien Watershed Restoration Action Strategy

The Coastal Program is also in the process of developing two SAMP-like initiatives to focus attention on special areas within the coastal region. Coastal Areas of Significance will be designated as either Areas of Particular Concern (APC) or Areas of Preservation and Restoration (APR).

An emerging issue in coastal Indiana is the potential change in land use as large industrial areas are being vacated. Industrial facilities in cities like Michigan City, Whiting, East Chicago, Gary and Portage offer the possibility as areas that could be considered for a SAMP process. Many of these areas are now considered “Brownfield” sites where remediation activities are either underway or pending. A SAMP process could further increase the opportunity to revitalize the economic utility of a site, while at the same time enhancing the ecological or social benefit to the surrounding community.

Using the criteria listed above, identify areas of the coast subject to use conflicts that can be addressed through special area management planning.

Area	Major Conflicts
Industrial-based areas of the coast	Industrial/contaminated lands are currently precluding public access or natural resource enhancement.
Designated APRs	Inadequate protection of historic, cultural and natural resources.

Management Characteristics

Identify areas of the coast that have or are being addressed by a special area management plan since Program Approval:

Grand Calumet Area of Concern –The Grand Calumet River has been designated as an Area of Concern pursuant to the Great Lakes Water Quality Agreement. The Grand Calumet River, originating in the east end of Gary, Indiana, flows 13 miles (21 km) through the heavily industrialized cities of Gary, East Chicago and Hammond. The majority of the river's flow drains into Lake Michigan via the Indiana Harbor and Ship Canal, sending about one billion gallons of water into the lake per day. The Area of Concern (AOC) begins 15 miles (24 km) south of downtown Chicago and includes the east branch of the river, a small segment of the west branch and the Indiana Harbor and Ship Canal. Today, 90% of the river's flow originates as municipal and industrial effluent, cooling and process water and storm water overflows. Although discharges have been reduced, a number of contaminants continue to impair beneficial uses of the River.

Historically, the Grand Calumet River supported highly diverse, globally unique fish and wildlife communities. Today, remnants of this diversity near the AOC are found in the Gibson Woods and Pine Nature Preserves. These areas contain tracks of dune and swale topography and associated rare plant and animal species, such as Franklin's ground squirrel, Blanding's turtle, the glass lizard and the black crowned night heron, among others.

Problems in the AOC include contamination from polychlorinated biphenyls (PCBs), polynuclear aromatic hydrocarbons (PAHs) and heavy metals, such as mercury, cadmium, chromium and lead. Additional problems include high fecal coliform bacteria levels, biochemical oxygen demand (BOD) and suspended solids, oil and grease. These contaminants originate from both point and nonpoint sources.

A Remedial Action Plan (RAP) was developed and is being implemented through an ecosystem based, multi-media approach for assessing and remediating impaired uses. The RAP consists of three stages: Stage I identifies and assesses use impairments, and identifies the sources of the stresses from all media in the AOC; Stage II identifies proposed remedial actions and their method of implementation; and Stage III documents evidence that uses have been restored. It is important to note that, in practice, these stages often overlap, and that the RAPs often become iterative documents, representing the current state of knowledge, planning and remedial activity in the AOC. The Calumet River RAP is currently in stage II.5.

Marquette Greenway Plan – Marquette Greenway Plan is bringing together the communities of Whiting, East Chicago, Gary, Hammond and Portage to create a master plan for acquiring and establishing a 200 foot wide path for biking, running and other recreation, allowing public access to Lake Michigan where heavy industry currently resides.

Little Calumet Calien Watershed Restoration Action Strategy (WRAS) – The Little Calumet-Galien watershed is composed of portions of two larger watersheds. The Little Calumet River collects its waters from many small streams and drainage ditches in northwestern Indiana before emptying into Lake Michigan via Burns Ditch and the Calumet Harbor in Illinois. A unique feature of the Little Calumet River is that its

direction of flow corresponds with the water levels in Lake Michigan. The location in the river where the direction of flow splits between Indiana and Illinois shifts, depending on the lake levels and climate conditions throughout the year. Agriculture is an important use in the Little Calumet-Galien Watershed. About 40 percent of the land cover in the watershed is agricultural vegetation. The Little Calumet-Galien Watershed Watershed Restoration Action Strategy (WRAS) was one of 17 WRAS developed to ensure federal Section 319 grant funding in priority watersheds (identified in the Unified Watershed Assessment). The WRAS is divided into two parts: Part I includes general watershed descriptions, causes/sources of water pollution, water quality/us support ratings and state and Federal water programs; Part II focuses on water quality concerns identified by local stake holders and state and federal agencies, identification of impaired waters, priority issues and recommended management strategies, and future expectations and strategies.

Identify any significant changes in the state's SAMP programs since Program Approval (i.e., new regulations, guidance, MOUs, completed SAMPs, implementation activities, etc.). Provide the following information for each change:

- ***Characterize the scope of the threat***
- ***Describe recent trends***
- ***Identify impediments to addressing the threats***
- ***Identify successes***

The Indiana Coastal Program is currently in the process of developing two SAMP-like initiatives to focus attention on special areas within the coastal region. Coastal Areas of Significance (CAS) will be designated as either Areas of Particular Concern (APC) or Areas for Preservation and Restoration (APR).

APC designation will focus on areas where the problem is primarily that management regime lacks sufficient coordination and/or resources. APC designation will result in prioritized Coastal Program and Coastal Grants funding, enhanced interagency cooperation, additional technical assistance, and support for research and local planning.

Establishment of Areas for Preservation and Restoration will be for the purpose of preserving or restoring the area for ecological, conservation, or recreational values. APR designations will meet the general criteria for an APC, but are areas where additional restoration or protection is required. An APR site must be on public nonfederal lands, or a landowner can voluntarily submit the site provided some form of public access is being provided.

Conclusion

Identify priority needs or major gaps in addressing the programmatic objectives for this enhancement area that could be addressed through a 309 strategy.

The major gaps in addressing the programmatic objectives for this enhancement area:

- The general lack of understanding of the SAMP process and potential benefits; and
- The lack of adequate staff dedicated to SAMP efforts. Development of a SAMP is time intensive and requires sufficient staff be available to manage the process.

What priority is this area for developing a 309 strategy and designating 309 funding?

High ☐ Medium ☒ Low ☐

Justification of Priority

The Indiana Coastal Program currently has an ongoing effort to develop the criteria and procedures for designating Coastal Areas of Significance. The SAMP-like CAS designations will be an important way for the Coastal Program to improve coordination among agencies and support the enhancement of critical coastal resources. A more traditional SAMP process may be appropriate for the Coastal Program to pursue at select industrial locations in the future.

ENERGY & GOVERNMENT FACILITY SITING

Section 309 Programmatic Objectives

I. Enhance existing procedures and long range planning processes for considering the needs of energy-related and government facilities and activities of greater than local significance.
II. Improve program policies and standards which affect the subject uses and activities so as to facilitate siting while maintaining current levels of coastal resource protection.

Management Characterization

Identify significant changes in the state's ability to address the siting of energy and government facilities since Program Approval (e.g., new regulations, guidance, manuals, etc.). Provide the following information for each change:

- ***Characterize the scope of the threat***
- ***Describe recent trends***
- ***Identify impediments to addressing the threat***
- ***Identify successes***

There have been no significant changes in the state's ability to address the siting of energy and government facilities since the Indiana Lake Michigan Coastal Program was approved. In fact, the Indiana coastal area is experiencing the loss of productive energy facilities that may lead to reducing the overall threat to coastal resources and increase the amount of public access. For example, the lakefront Dean H. Mitchell Generating Station in Gary was shut down in 2002 and the city is assuming responsibility for the land for reuse.

Conclusion

Identify priority needs or major gaps in addressing the programmatic objectives for this enhancement area that could be addressed through a 309 strategy.

No major gaps in addressing the programmatic objectives have been identified.

What priority is this area for developing a 309 strategy and designating 309 funding?

High ☐ Medium ☐ Low ☒

Justification of Priority

Indiana currently has adequate programs and procedures in place to address energy issues and for the siting of government facilities in the coastal area.

AQUACULTURE

Section 309 Programmatic Objectives

I. Enhance existing procedures and long range planning processes for considering the siting of public and private lake aquaculture facilities in the coastal zone.
II. Improve program policies and standards that affect aquaculture activities and uses so as to facilitate siting while ensuring the protection of coastal resources and waters.

Resource Characterization

Briefly describe the state's aquaculture activities (e.g., existing procedures, plans, program policies and standards.

Aquaculture in Indiana dates to the late 1800's when a substantial goldfish industry was developed. The farms produced goldfish for the bait industry that were shipped via rail throughout the Midwest. By 1998, the aquaculture industry in the state had grown to a total product volume of $2.68 million with 24 active farms. This includes eight state hatcheries, none of which are located in the coastal area. There are currently over 23 species of finfish cultured in Indiana. The majority of acres devoted to fish production have been for game fish (bass, sunfish, steelhead trout, and catfish) for private stocking, minnows for baitfish, and ornamentals. In recent years fee fishing operations have also been established that are supplied, in part, by local producers. The Indiana Aquaculture Association (IAA) was founded in 1987 to promote the production and marketing of aquaculture products in Indiana. The IAA accomplishes this goal through education of its members, encouraging scientific research, promoting exchange of information among members, and enhancing public interest in aquaculture.

In 1989 the Indiana Legislature passed State Senate Bill 143, known as the Indiana Aquaculture Act. This Bill officially recognized aquaculture as a form of agriculture and not an offshoot of the sport fishing industry as it was previously considered. Aquaculture facilities in Indiana are subject to specific state (and federal) regulations that dictate how facilities are constructed and operated, and how products are handled and sold. The IDEM Office of Water Management regulates potential pollution from wastewater discharge through NPDES permits issued. The IDNR Division of Water regulates construction in a floodway, construction in or near Lake Michigan, and water supply and withdrawal. IDNR Division of Fisheries and Wildlife may also require permits to raise, hold, transport, stock, import, export, sell, or collect fish in the state of Indiana. The Indiana Department of Health (ISDH) inspects food production and processing facilities to ensure a safe food supply.

In addition to the regulatory requirements for aquaculture facilities in Indiana, the Indiana Office of the Commissioner of Agriculture has overall responsibility for state aquaculture policy and to facilitate the growth of the industry, primarily through providing grants and developing marketing initiatives.

Briefly describe environmental concerns (e.g., water quality, protected areas, impacts on native stock and shellfish resources). Also, describe any use conflicts (e.g., navigational, aesthetic, incompatible uses, public access, recreation) and future threats (e.g., shoreline defense works, introduced species).

The main environmental concerns related to aquaculture facilities in Indiana are similar to those experienced by all states and can be divided into the following categories:

Biological Pollution: Fish that escape from aquaculture facilities may harm wild fish populations through competition and interbreeding, or by spreading diseases and parasites.

Eutrophication: Some aquaculture systems contribute to nutrient loading through discharges of fish wastes and uneaten feed, but it can be locally significant.

Chemical Pollution: A variety of approved chemicals are used in aquaculture, including antibiotics and pesticides.

Habitat Modification: Construction of aquaculture facilities can physically alter or destroy wetlands and other critical habitats.

Use conflicts arising from aquaculture facilities in Indiana have not been a major issue.

The most prominent future threat is the possible introduction of nonindigenous species. This concern is addressed through the existing regulatory regime of IDEM and IDNR.

Management Characterization

Identify significant changes in the state's ability to address the planning for and siting of aquaculture facilities since Program Approval (new regulations, guidance, manuals, etc.). Provide the following information for each change:

- ***Characterize the scope of the threat***
- ***Describe recent trends***
- ***Identify impediments to addressing threat***
- ***Identify successes***

There have not been any significant changes since Program Approval.

Conclusion

Identify priority needs or major gaps in addressing the programmatic objectives for this enhancement area that could be addressed through a 309 strategy.

The current regulatory and nonregulatory regimes adequately address the programmatic objectives.

What priority is this area for developing a 309 strategy and designating 309 funding?

High ☐ Medium ☐ Low ☒

Justification of Priority

Indiana currently has in place adequate programs and procedures to ensure proper public and private siting and operation of aquaculture facilities in the coastal zone. It is not anticipated that new facilities will be developed in the coastal zone over the next five years.